

**GUJARAT TECHNOLOGICAL UNIVERSITY****B. E. Sem-VI Examination May 2011****Subject code: 161802****Subject Name: Marine Electrical Technology and Machines****Date: 17/05/2011****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Draw and explain single turn alternator. **07**  
 (b) Explain short circuit test and open circuit test on synchronous alternator. **07**
- Q.2** (a) Principle of action of three phases synchronous motor. **07**  
 (b) Derive E.M.F. equation of an alternator. **07**
- OR**
- (b) A 3-Phase, 500 rpm, 12 pole alternator has its armature with 180 slots carrying a single layer winding. Each coil of winding has 40 turns and the coil span is shorted by 2 slots. Flux present in the machine is 60 mWb/pole. Determine induced E.M.F. per phase. **07**
- Q.3** (a) Explain construction of brushless high speed A.C. generators. **07**  
 (b) Explain rules and regulations governing electrical machinery on ships. **07**
- OR**
- Q.3** (a) Explain characteristics of brushless high speed A.C. generators. **07**  
 (b) Explain arrangements of preferential trips & Protective devices with wiring diagrams. **07**
- Q.4** (a) What is starter? How it is used for sequential starting and automatic fired? **07**  
 (b) Explain : (1) Overload protection **07**  
                   (2) Magnetic Disc  
                   (3) Brakes
- OR**
- Q.4** (a) What are the Special requirements of motors & starters for Anchor Windlass & Capstan ? **07**  
 (b) Explain any two safety devices or equipments for sequential starting. **07**
- Q.5** (a) Explain characteristics of continuous maximum rated machine. **07**  
 (b) Explain any two classes of insulation. **07**
- OR**
- Q.5** (a) Explain centralized control of Motors in machinery spaces. **07**  
 (b) Explain rotary generators with diagram. **07**

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